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ABSTRACT

The Milwaukee Public Schools, in consultation with the University of Wisconsin-Milwaukee, received a planing grant for the 1993-94 school year to join in a collaborative effort to conduct the Milwaukee Public Schools Mathematics and Science Self-Study. The goal of this study was to examine the status of K-12 mathematics and science programs throughout the Milwaukee Public School district. The purpose of this report is to contribute data to the formative evaluation of Milwaukee's Urban Systemic Initiative (MUSI) during its first year of implementation. This report consists of information obtained from the initial interviews with the first cohort of mathematics and science resource teachers. During these initial interviews, the first cadre of mathematics and science resource teachers discussed many positive and negative aspects of MUSI after its first several months of implementation. Strengths and weaknesses of MUSI discussed in these interviews are listed. (ASK)

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Analysis of Initial Interviews with First Cohort Mathematics/Science Resource Teachers

A Study of the Milwaukee Urban Systemic Initiative

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The purpose of this report is to contribute data to the formative evaluation of Milwaukee's Urban Systemic Initiative (MUSI) during its first year of implementation. It consists of information obtained from the initial interviews with the first cohort of Mathematics and Science Resource Teachers, hereafter referred to as MSRTs.

BACKGROUND

In 1994, the Milwaukee Public Schools (MPS), in consultation with the University of Wisconsin–Milwaukee (UWM), received a planning grant for the 1993-94 school year from the National Science Foundation for the Urban Systemic Initiative. The planning grant allowed MPS and UWM to join in a collaborative effort to conduct the MPS Mathematics and Science Self-Study. Guided by the MPS K–12 Teaching and Learning Goals and the School-To-Work principles, the purpose of the study was to examine the status of the K–12 mathematics and science programs throughout the MPS district. The information gained from this study is detailed in the report titled, *The Landscape of Mathematics and Science Education in Milwaukee* (Huinker, Doyle, & Pearson, 1995).

THE PLAN FOR REFORM

The results of this comprehensive study provided input into the development of an aggressive systemic implementation plan to reform mathematics and science teaching for all MPS students. At the core of this plan are five major goals:

- Establishing ongoing collaborative vision setting,
- Instituting high standards and performance assessments,
- Narrowing ethnic, gender, and socioeconomic achievement gaps,
- Developing high content, inquiry-based, technology rich curriculum and instruction, and
- Breaking the boundaries between classroom and the broader community.

Milwaukee's Urban Systemic Initiative (MUSI) is a sweeping reform plan that includes three critical components. The first component involves mobilizing and supporting communities of learners at all levels—classrooms, schools, district, and city. The second component is the development of a core of teacher leaders to transform school communities. The third component is the establishment a mathematics, science, and technology center as a hub for teacher, parent, and student activities and a locus for increasing student opportunities and linkages with the broader community. MPS joined in a cooperative agreement with and received funding from the National Science Foundation's Urban Systemic Initiative to help implement this reform plan over five years.

The MUSI plan outlined how schools would be brought into full participation in four waves. With the principal as leader, each first-wave school was to identify a team consisting of teachers, parents, students, the MSRT, and other community members which was to serve as the nucleus of the school's community of learners. All members of the team were expected to participate in learning activities around mathematics and science, to function as in-school collaborators, and to contribute to the district's community of learners by participation in institutes, networks, courses, and other district-level activities. The plan called for the mathematics, science and technology center (the COSMIC Center), to be operational with the start of the 1996-97 school year. Through a contractual agreement with MPS, UWM was to provide support in the form of evaluation and training.

During the summer of 1996, a MUSI Director and Assistant Director were hired and twenty-five MPS teachers were selected to serve as catalysts for change in 54 schools as Mathematics and Science Resource Teachers. Each MSRT was assigned to two schools with the exception of two MSRTs, one who had three schools and the other who had four schools.

DESIGN OF THE STUDY

In November 1996, interviews were conducted with the first cohort of MSRTs to determine their early impressions of MUSI. The MSRTs had completed a month-long training institute and had been working in their assigned schools for approximately one month at the time the interviews were conducted.

It is the content of those interviews that forms the substance of this report. Eleven questions were developed to elicit perceptions of the strengths and weaknesses of the initiative in its earliest stage. Interviews were semi-structured to allow for flexibility and spontaneity on the part of respondents. The interviews were conducted by two doctoral students at the University of Wisconsin-Milwaukee who were well-versed in the process of interviewing. They conducted individual interviews with 22 of the 25 over a two week period. Three MSRTs declined an interview.

Interviews, which were approximately 45 minutes to one hour long, were audiotape recorded and transcribed, except in one case in which hand-written notes were taken. Each transcription and hand-written notes were read to provide an overview of each interview. Data were then re-read several times and, using varied methods of coding (Miles & Huberman, 1994), were reduced into meaningful patterns according to each of the eleven questions.

THE INTERVIEWS

Each interview question is discussed separately below. A summary of the responses from all of the interviewees to each questions is presented. Then an illustrative selection of comments from individual MSRTs are listed.

Why did you decide to apply for the position of a Mathematics/Science Resource Teacher (MSRT)? What was it about this position that attracted you?

Most of the MSRTs cited their interest in mathematics and/or science as the primary reason why they applied for the MSRT position. As a group, they had strong professional histories of leadership and involvement in many professional capacities both within the district and at the state and national level.

Collectively, the MSRTs reported that they had expertise to offer. This expertise was most often in mathematics, but several MSRTs addressed their interest in both mathematics and science and their desire to blend the two. Several others saw themselves as "change agents" to transfer their "passion" for mathematics or science to others. They wanted to make a greater impact in the district than their previous positions permitted. Other comments clustered around personal reasons for applying for the MSRT position such as, physical mobility and movement, need for a change, and retirement.

- I have done a lot of work in MPS in mathematics. I was a program implementor, and I felt that maybe this was the next step in having a more direct impact with the math curriculum.

- I was ready for more professional growth, and while I was working for Equity 2000 this (past) summer, we were all invited to apply for the MSRT positions. I did not know we were going to do both math and science until after we started.

- I wanted to have the opportunity to make a difference across the city with the skill and training that I've received over the last five years. I felt this would be a help to the district as a whole.

- I wanted a chance to spread the word, to show some people my ideas before I wrapped it up.

- I wanted to grow, to see wonderful opportunities and to learn new things; I love to learn. The emphasis on training in the job description is what finally swung me to apply.

- I have a passionate love for math. I just love math and science, and hopefully I'll be able, in some way, to transfer that excitement.

- I thought we needed to improve the math and science education in MPS. So, from the conceptual beginnings of this project, it was something that I had been advocating too, and I wanted to be involved.

- I have been involved with science reform in the district for a number of years, and combined with math, well, these just happen to be two of my favorite things to teach and favorite things to learn about. Also, I like playing the role of change agent.

- I wanted to have the opportunity to make a difference across the city with the skill and training that I've received over the last five years. I felt this would be a help to the district as a whole.

- I needed a change from the classroom. I wanted to move, to physically move around. This job hit a lot of the goals I had set for myself.

How do you feel now about being an MSRT? Why did you accept the position of being an MSRT?

Over half of the MSRTs spoke positively about the initiative and their role in it. Others felt that things were not going "as smoothly as what one might expect," while a few indicated that they would rather be working elsewhere. The MSRTs cited poor communication and discrepancies between their understanding of the initial position description compared to current expectations as reasons for their dissatisfaction.

Feelings about the MSRT position reportedly varied from week to week or day to day. This appeared related to acceptance and acclimation into their assigned schools. Words used frequently were "challenging," "exciting," and "frustrating." Along with frustration, the MSRTs expressed an understanding of how challenging establishing a new program can be for all involved.

- I feel really good. I think it's a great job; it's extremely exciting. I think it's the hardest job I've ever had and certainly the most time consuming. I did not think it would be this challenging. It's very challenging and very frustrating.

- I thought my role would be science only. I wanted to concentrate on science, so I'm not too pleased with how much concentration I have to give to the math part.

- How satisfied I am depends upon which school I am at. At one school I like the position a lot; at the other school, I struggle and flounder. My feelings vary from week to week.

- Some days I think that I am very successful, and some days I think, why am I doing this? Will I make a difference?

- It has not gone as smoothly as what I thought. I've had frustrations.

- I can name a dozen feelings. At first, I was totally overwhelmed.

- I like it. It is fun; it is interesting. I am working with administrators quite a bit. That's one role that I never really expected.

- I knew it would be hard, but now I think it has turned out even harder than I thought it would be. There are so many different people to work with, and I'm not really good at being politically correct, or at playing politics. The time constraints in elementary school are hard. The only time to meet with everyone is before or after the school day.

- I expected bumps the first year because I know we were doing something new. I'm enjoying it. I know the rough spots. There are all the little games that we have to figure out how to play, and so it's a process. I try to come with a more exploratory mode, rather than as someone with all the answers.

- The answer to this for me, and maybe for some of the other MSRTs, depends upon the time of day you are asking them. Today, I was so busy, but, I thought, this is good; this is movement. I need to keep moving.

- I haven't seen anything implemented yet. So I really do feel frustrated. Sometimes I'm not sure if I really know enough.

I would like you to comment on and talk about the preparation provided you in the MSRT Institute.

The MSRTs had high expectations of their preparation for their new roles. For some, it was the reason they accepted the position. Most were disappointed. In their eyes, the preparation was haphazard, sporadic, fragmented, and poorly planned. The positive aspects that they did mention were regarding the quality of the presentations by Enid Lee and the UWM staff. However, overall, the preparation and training provided received poor marks by this first-wave of MSRTs. This was primarily due to (a) inappropriate assessment of needs, (b) a lack of follow-through, and (c) poor organization.

The MSRTs felt that their needs were primarily in leadership and communication, but that they did not receive sufficient training in these areas. They also reported that they needed substantially more training in the science standards and school change than they received. Instead of formal presentations, they wanted follow-up, practical application through activities such as, role playing, enactment and observations of contextual situations. This

would have been more consistent with the approach that they were expected to facilitate in their schools. Overall, they described their training as disorganized, and that it "jumped from one mini lesson to the next mini lesson" with no continuity or focus.

In addition, the MSRTs believed that the principals of first-wave MUSI schools should have received more training. The principals needed far more understanding of the goals of the program and the role of the MSRT, but little training was provided for them. What was done, was done too late. This lack of training of principals caused serious communication problems and placed the MSRTs in difficult and compromising situations. Several MSRTs also indicated that the MUSI leaders needed training.

- I got frustrated with the training because I didn't see it going anywhere. The purpose was not always quite clear. It seemed like we jumped from this mini lesson to the next mini lesson and had no time to discover what these mini lessons were supposed to be telling us. I think we could have had more training on change. Part of our goal is to narrow the gap. We haven't been presented with any clear cut strategies to do that. There was never any feedback, and there was never any follow-up.

- I don't think there's ever going to be training that's going to touch on every single thing that comes up. I still need more in the area of science. I also feel that I would like to have a discussion concerning classroom management.

- There was a notable lack of organization on the part of the leadership during the three weeks of instruction. It was very fragmented. I would have been more pleased if we would have done things in context. We did not start on time. There were huge blocks of time when people were just milling about and waiting for whoever was the leader to begin. It was irritating. We are talking about a group of people (MSRTs) who are leaders in their fields within the school system. They have done a lot of workshops. They are used to being in class and conducting themselves minute by minute making sure that their students have opportunities for learning. I would have thought we would have been provided the same courtesy; we were not. We were like-minded people working toward the same goal, the same vision. What a wonderful opportunity. The problem was it didn't merge together like I would have hoped.

- Some great preparation, unfortunately I don't think it went far enough. There was not enough time to practice confrontations. I needed a lot more on role playing. I also needed much, much more on the science standards; the math standards I understand.

- I think there needed to be training not only for us, but I think there needed to be more training for the schools that we were going to. There were a lot of misconceptions that we were coming in to be the math teachers and have groups of students.

- Many of the principals and schools thought that they were going to get an extra teacher. They needed to have more training before we entered the schools.

- The training was very inadequate. It was disjointed. There was very little on science standards and that's what I wanted to know more about. The whole training seemed disorganized, no common mission. I could have been in the schools and probably gotten as much or more, and come back later for training once I knew what I needed. I wanted the opportunity to get some really good training, but I was very, very disappointed.

- I don't think we dealt enough with communication skills. We needed to know not only what you say, but how you say it. I feel that some of us might have gotten into trouble

for the way we said things. I still don't think we know the standards as well as we should. I know that sitting around and talking has been very beneficial. But, unless you have patience for that, some people think you're wasting time. So, it's hard to get on the same page, when some people view it as a waste of time, and some other people view it as the process you go through. The process is as valuable as the outcome.

- The preparations were very poorly planned. We needed a lot more on communications, about how to communicate with a person. Nothing was ever pulled together.

- I think people were well intended, and they tried to give us this huge vision. In the process of doing that, this huge body of information became very confused. I think about the preparation in clumps of stuff: There is the math chunk; There is the science chunk, and then there is the political chunk.

- We needed more preparation on the standards. I'm not saying that intellectually the MSRTs don't know the standards, but I think we would be hard pressed to identify behaviors in classrooms and how they fit the standards. UWM provided some meaningful presentations. We needed to first hear it, but then, we also needed to see it in action.

- We needed to get into the schools. We would have had a feel for our schools and then come back for some training.

- The leadership also needed training. They were starting a new program from scratch. Some didn't have any experience in working with adults.

- The principals were given only one 45 minute session about what my job was. They knew nothing. They had no idea of what was going on when we got to their schools. And, if the principals didn't know, then their staffs didn't know either. And we MSRTs, on the other hand, are very good at what we did that made MUSI originally consider us for this role. But none of us were used to dealing with people in administrative positions like this.

Describe in your own words what is MUSI (Milwaukee Urban Systemic Initiative)?

Apparently the goals of MUSI were well communicated to the MSRTs because they rang forth loud and clear throughout the interviews. The MSRTs wanted to increase the achievement of all students in mathematics and science and to reduce the gap between diverse groups of students, particularly white and non-white students. The MSRTs understood that this effort must be systemic and that it would take a community of learners to do it.

They believed that the way to implement this is to change the way teachers teach mathematics and science in MPS. They said that instruction should be standards-based and taught using hands-on inquiry based instruction that integrates thinking. Overall, the interviews with the MSRTs were consistent with these MUSI goals except in one area, the blending of mathematics and science. Some of the MSRTs themselves appeared uncomfortable and reluctant to cross disciplinary lines. This was seen in the responses of several MSRTs in Question 2.

- MUSI is an agreement, not a grant, between the National Science Foundation and the Milwaukee Public Schools, to improve student achievement and to reduce the gap between ethnic and racial groups in Milwaukee. It is based on a model of a community

of learners so, it just doesn't involve students. The whole project can draw on resources from the National Science Foundation, from the University, and from the communities. It's really a great way to focus on math and science.

- MUSI is trying to increase math and science performance of students, to create a community of learners, to get a hands-on concrete approach to math and science that makes sense. MUSI is trying to get away from what I observed on my first day when I walked into my assigned school. I saw this teacher with a tall pile of worksheets stacked in different directions. Each sheet had approximately 35 problems, three-digit multiplication by three-digit multiplication. I said give these kids a calculator.

- MUSI is a vision; it's a vision of all of the community, not just the students, not just the teachers, not just the administrators. It's a vision that everyone will be able to appreciate the beauty of math and science; to understand how they're using math and science in their daily lives.

- MUSI is an initiative in science and math instruction to address the equity issue, to have everyone as a whole system geared up at closing gaps.

- In Milwaukee, classrooms were stocked with unused games and challenging activities. MUSI is an attempt to take that box off the shelf and actually use it in the classroom.

- MUSI is the name of the project that is accountable to the National Science Foundation's goals. There are primarily two goals for MUSI - to raise science and math achievement for all students and to narrow the gender and race gap for scores in math and science.

- MUSI is working with the notion that "it takes a village to educate a child." It is the process of improving science education for children by trying some things that we have not had the resources to do in the past.

- It was supposed to be an attempt at changing the paradigm of what a teacher would be.

- Simply, it is a plan that is being implemented to improve math and science instruction for all students. Plain and simple. The other focus is on closing the achievement gap between white and non-white students.

- When I think of MUSI, I think of system change. That's the big thing. And then, how do you do that? A big part of that is what we're working on right now. Trying to get the MSRTs to begin to think the same on what is good math and good science. And what does that looks like in the classroom?

What are you doing, and what do you anticipate doing in your schools this year? With teachers and staff members; With students; With administrators; With community members and parents.

The purpose of this question was to determine how MUSI was being implemented. The responses were as varied as the number of MSRTs times two because each MSRT had two schools that varied significantly in their needs and expectations. The MSRTs, described more differences between their schools than similarities.

By and large, the initial plans of most MSRTs were directed at the goals which they articulated in the previous question. However, each MSRT was at a different stage of implementation. Many jumped right in and initiated classroom activities quickly; others

were still taking inventory of needs through meetings and surveys. They were talking with teachers and administrators asking them what these people saw as their role in the school. And several others still spoke primarily to the future. Their actual implementation remained unclear. They espoused the goals of MUSI well, but their specific implementation activities were not heard in the interviews.

For those MSRTs who were actively involved in classrooms, demonstration teaching and modeling for teachers were their most frequent strategies. These MSRTs described their "tricks" and "trade secrets" for accessing classrooms where they felt they could implement change. They saw themselves as "catalysts for change" and understood that to do this they needed to be visible within their schools. Due to time constraints, some prioritized needs, deciding to ignore teachers who were reluctant to change in favor of more flexible teachers.

MSRTs served as advocates for math and science in their schools by making connections, encouraging teachers to sign up for MUSI courses, gathering resources, and providing support by assisting with science fairs or simply being "an extra pair of hands." Their work with administrators consisted primarily of keeping them informed. Although they indicated that they had not had much involvement with the community and parents, several MSRTs had already spoken to parent groups and met with the PTA/ PTO at their schools. Their future plans included more demonstration teaching, collaborative teaching, grant writing, community involvement, and assistance with funding programs.

- I am trying to boost people's awareness. I'm doing a presentation this weekend on how to teach math with maps in context. I also would really like to get into writing some grants and helping people get some of the funding they need. I'm trying to encourage them.

- In one school, there are many new teachers, and I've been working with them as to how the science program fits together, and what inquiry-based science looks like. I also anticipate being involved in the Science Fair. I've modeled some lessons; I've even taught some lessons. In my other school, there is a science implementor/lab teacher, and as a result, some of the teachers feel like if they have one hour of science lab a week, that's all they need in science. I am trying to change that thinking.

- My role in the two schools is different. In one school, classroom management skills are very important. I'm going to concentrate on some techniques, and I'm going to do this gently without evaluating, but by being viewed as a helper. I'm also helping some kids on a science fair project. At the other school, there are 13 or 14 math teachers. That's a lot of people to deal with, and I'm only there every other week. I have collected information and brought together curriculum and projects ideas for them. One teacher asked me to come in and do a demonstration on use of the graphing calculator. We got algebra into the science class with slope, correlation, and coefficients. I went in twice so the comfort level of the teacher and the students would increase. The word got out, and then I started getting calls, and now I'm booked to January at least or beyond. I've also investigated having students come after school for tutoring, but the kids who need it don't come. I've talked to the parent academy to see if there is any way they can help. The school is making list of students with D's or F's and working with the counselors and the parent academy. Families are going to be contacted. I think there is more to do than there is time.

- I'm just trying to start on small levels with the school community—local businesses or perhaps the parents that aren't involved in math and science or the PTA. I would be really happy to help develop a program with a local bank. There is one person who is trying to set that up. The principal feels that the science lab isn't a lab without animals

in it. So there is this real push by the principal to get animals in there. There's a big struggle about who will take care of the animals. Maybe, I'll have to take them home.

- I'm trying to write resources. I've been writing approximately one every week. I'd like to develop a parent math program, but I think I'll wait until the COSMIC Center is ready. I basically want teachers to get ideas from me and to run with them. There are a lot of teachers that don't need anything from me; they are already doing a fantastic job in both math and science.

- I'll start with the students. I envision getting into at least half the classrooms two to three times to expose them to the scientific process. The school wants me to focus on science; to familiarize students with the standards and the scientific process. The administrators want me to help them set up programs and to keep them better informed. With parents, I plan to familiarize them with what their child is doing in science. Perhaps I'll be giving them activities to do at home as a family.

- I ask the teachers, Would you like to team teach? They all want me to start the lesson; they're scared as heck. I always start; then they do a lesson; then I do a lesson. I'm modeling the way a lesson is done, and I'm discussing the way hands-on lessons work. Then, after the lesson, we're always talking. We are reflecting on why I did what I did. The time is always short, and I think I do too much talking. I want the students to view their teachers as the science teacher. Students don't know how to view me; they say, "Oh, here comes the science teacher." My response to them is, "I'm not the science teacher, your teacher is the science teacher. I'm here to work with your teacher."

- In one school, I hope that when I work with classrooms that it will begin to reverberate throughout the building. The key, that I see right now, is me trying to find ways to work with teachers, to tweak the way they present information, to become more a facilitator, to provide information on how to use the inquiry-based approach with their kids so that students will be able to explain their understanding of a problem and how they go about solving it. The other school has a science lab, but kids get into the lab only about three weeks out of the year. We're working on changing that schedule. One of my administrators has already offered to buy my services full-time.

- I have not gotten real involved with any of the PTA stuff. I did make a presentation to the parents PTA meeting at an open house, two open houses as a matter of fact, but other than that no parent involvement.

- Right now I'm the extra pair of hands. I see myself as a liaison—collecting materials, tracking down people, making phone calls.

- I set up what I call "how would you like a free one?" I ask teachers if they wouldn't mind allowing me to do a science lesson with them watching and with me modeling. The kids know me as Mr. Science. In the future, I'm going to be looking at the teachers doing more of the initiating in the classes with me more as a helper who does only an occasional "free one."

- What I want to set up is meetings after school. I promoted teachers taking the UWM course in math, and many of the staff members have signed-up. I am going to take the course with them. Hopefully we can share some of the things that are presented with other staff members that are not involved.

- I've identified resources for the schools. I have connected people with those resources. I am visible, I am the math/science ambassador. I spend time in the lounge during my lunch time. I usually make some contacts even though the teachers are trying to eat. I'm trying to get some dialogue going on math and science. I attend some team level meetings and staff meetings. I have also attended one of the PTO meetings. I anticipate getting into the rooms a lot more and doing demonstration teaching. I have already done some of that.

- In one school I'm concentrating on math. In the other it's science. I've met with all the grade levels, talked about MUSI, and asked them what they want me to do. I've sent out surveys in both buildings. I've also met with parents, and we're planning a family fun night or a family math night. One school has a very large staff. That creates a problem because it's hard to get to everybody. The principal has asked me to an in-service this Saturday and one in December.

Describe your experiences in entering your two schools. Compare the situations in the two schools.

The experiences of the MSRTs upon entering their assigned schools varied considerably and were dependent on the school administration. In those schools where the administrators were informed and enthusiastic about MUSI, the MSRTs were welcomed and made to feel part of the school team. Many of these administrators provided a location for the MSRT to work and time for the MSRT to introduce themselves and explain their emerging roles to their school faculties.

However, these were the exception rather than the rule for the 25 first-wave MSRTs. Most frequently, the MSRTs reported that the principals at their schools had little knowledge about MUSI and of their role as part of the systemic plan. Typically, the MSRTs found one school welcomed them more positively than the other school. In some cases, the MSRT found their entrance to be similar in both of their schools, but overall, felt administration and teachers in both schools should have been better prepared.

Facilities and resources were a major problem for many MSRTs. They did not have desks or places to store their personal belongings. For some, their access to supplies and simple photocopying services at their schools was extremely limited. The unavailability of supplies and resources at the COSMIC Center compounded these difficulties.

- At one school they were very accepting and open. At the other school, it's not that they didn't accept me, but the project was written by someone else so the new people in charge didn't know anything about MUSI.

- I spoke to both principals at first. They both came to the orientation meeting, and they both welcomed and empowered me, and entrusted me to do my own thing rather than trying to micro-manage my services. One school is working better than the other. They've given me a place to work and everything; in the other school I'm having a little harder time, but we'll work it out.

- In one school I brought a bag of donuts one day for this teacher, and he found me a desk in the basement. I'm between a refrigerator and the microwave. It's okay, I'm with some math teachers in there.

- In one school the principal came to the principal's meeting and was very informed about the project. When I went to that school, they were ready and waiting for me. The

principal took me around and introduced me to all of the teachers, and I had a tour of the school. The other situation, that principal had just been transferred to the school so he did not write the proposal. He was not informed about this project, and he did not attend the orientation meeting.

- Both principals are knowledgeable about MUSI. They did have questions on what to expect from me. They gave me time to present to the staff and explain who I was.

- The science people and the math people are very isolated. The science teachers will work in their rooms and do experiments, but they don't get together and let others know what they are doing. There does not seem to be a lot of discussion between them.

- At one of my school's there is a higher level of frustration. The teachers don't get along as well together as a group as at the other site. I thought my entering the picture was going to be negative, but it turned out to be kind of positive. I wasn't judgmental about anything that I saw. At the other school they don't struggle as much, as a staff, and they seem a little bit more isolated into their own classrooms. I haven't been able to reach out as much to them.

- I have placed notes in the principal's mailbox, and I feel there isn't any communication at all. The librarian told me there was a table in the back I could sit at. I now sit at this table, but I have no place to put my coat, or lock up my purse. At the other school they were not told anything about me or MUSI. I was never introduced at a staff meeting.

- As of now I have no desk, no telephone, no place to put my stuff at either school. I start off each Monday morning with a clipboard on the playground. The teachers tell me what they want me to teach, and I tell them what I've got open on my calendar. By Monday at 8:00 am, I've got my week pretty much laid out.

- I was warmly received at both schools. Some of the staff in the buildings didn't really have a good perception of what MUSI was all about. I wished that I would have been in the schools much earlier.

How do you feel about working in two (or three or four) schools?

Overwhelmingly, the MSRTs believed that having one school over two would be a far superior service delivery model. The disadvantages of having two schools included (a) insufficient time with large numbers of staffs and students, (b) little opportunity for continuity, and (c) scheduling problems, particularly if the schools had different starting times. Additional problems of unequal pairings of schools according to size were also mentioned. Some MSRTs felt that they had two schools with unusually high numbers of students and teachers, while others had smaller ones.

The MSRTs offered several alternative models in place of one school every other week. Some suggested that MSRTs be assigned on either a monthly or semester basis. One argued that an MSRT assigned for one year full time in one school would yield greater benefits than two years on a part-time basis.

A few MSRTs did find some positive things to say about the dual school model. The advantages they cited appeared more for their benefit, however, than for teachers and students. These included physical movement from school to school, variety, and the opportunity for MSRTs to learn more about different schools. A more school-based advantage mentioned was the bridging between schools that could be done. For example, MSRTs could facilitate understanding of curricula between levels of schools and/or sharing

of resources. But, in the long run, all interviewees said the disadvantageous of having two schools far outweighed any advantages.

- Having two different schools is very frustrating; it's extremely difficult. I am away from one school for nine days with the two weekends, and in that time so much continuity is lost. Each of the two schools is a full time job. If I could have had just one school for the first semester and then switched; maybe that would work.

- I am at each school every other week, it's like starting over when I get there, to touch base with these people again, to get going. It loses some of the continuity.

- If you are really asking for systemic change, you should only be in one school. I think it probably would have been better if we would have been paired initially with a math and a science person, because most of us are either math or science.

- I think it spreads me too thin, but on the other hand maybe it's good that I see and learn from comparing and contrasting what goes on in different schools. Maybe I'm seeing things that I could take back to the other school. I could connect the schools a bit, which I haven't done yet.

- It would have been better to start off working at one school for a month and then a month at the other; some system where you have more consistency.

- The two schools I work with are on different ends of the perspective, so I have to switch gears really a lot. My one school is very traditional. The other school is on the cutting edge. I almost think that a whole year in one school might show better effects than two years split between two schools. Because, then you become part of that school. Now I'm not quite a part of either school.

- Having two schools is difficult. I would like to know how schools were selected to be part of MUSI. Also, there doesn't seem to be much concern in pairing schools for the numbers of students and teachers. Some of us have huge schools with hundreds of students and large faculties while others have much smaller ones.

What do you see as the role of UWM in MUSI?

The MSRTs said that the role of the university was to provide expertise, support, resources, and evaluation. Comments made about the presentations, support, and accessibility of representatives from UWM were very favorable. MSRTs reported that the training from UWM staff was "excellent" and that they needed more time from the university. Several MSRTs also recognized the large role UWM played in the evaluation component of MUSI.

But, the MSRTs did not appear to understand the formal relationship that the university and MPS have through the MUSI agreement, particularly in fiscal and leadership matters. Only one MSRT mentioned the contractual relationship; several other MSRTs made the university's role sound benevolent, not financial. In addition, the MSRTs did not appear to understand the role and responsibility of UWM as one of four principal investigators of MUSI.

- UWM has, and I hope, will continue to do demonstrations. We hope to get more training on what a model classroom looks like. They will be running workshops for professional development not only for the MSRTs, but for math and science teachers.

They are offering classes, in some cases, at a reduced rate for just the cost of materials, and they're giving college credit for it. Who wouldn't jump at that.

- UWM's role is training and support. I think UWM has responded very positively. Whenever I needed anything or dealt with several of them, it has been very positive. I am very pleased with UWM.

- Well I understand UWM has an evaluative portion. Several of them are involved in the Algebra Network as resources. I'm learning about early childhood from them and finding that to be invaluable. I wish that there was more emphasis on science resources. Additionally, UWM could help in recognizing good classrooms.

- UWM should do what they do best, to provide adult education.

- UWM is offering a lot of sanity to this whole thing. They are getting frustrated because they don't feel like they are getting heard either. As far as I'm concerned, everyone with UWM has been great, but the time they can give us is too limited.

- I suspect that UWM would provide expertise in certain areas. I see UWM as providing resources when I need them.

- UWM's role is support, resources, and training. They also provide someone else that we can go to safely, and say what's working or not working without feeling that if I say we are having problems it won't be reported back to my principal, or this person, or that person.

- UWM provides opportunities to network, courses, continued training, and an evaluation role. I think the suggestions for changes that we make can come from our recommendations through UWM. I think that our leadership may accept those changes better because they are not coming from a particular MSRT.

- UWM has a role of data gathering, offering specific technical help, course work, and grant writing.

- I thought UWM was part of the people running the program, but then we were getting conflicting messages. They (MPS) made it very clear to us that UWM was the contracted service. We were not to listen to anything they said. So I don't understand what the actual role of UWM is anymore.

Comment on the leadership for MUSI at this point in time.

During the interviews, the term "leadership" was not defined for the MSRTs who then interpreted it along traditional lines. They discussed the leadership of MUSI as if it were only in the hands of Central Services, the MUSI Director, and the MUSI Assistant Director. Although they could have broadened their own perceptions toward constructivist leadership, they did not, instead viewing it from a familiar linear and hierarchical framework. A few addressed the roles of administrators from NSF, but not one MSRT mentioned their roles as leaders when asked in this context. They frequently looked to the MPS system rather than themselves for answers and directives. Their vision of leadership remained bounded by bureaucratic walls.

The MSRTs overwhelmingly spoke about the respect they held for their leaders. They described them as "committed," and "hard working." However, the MSRTs felt they received changing and conflicting messages from their leaders. They were confused about

who the leadership was and did not understand the various roles of people involved in MUSI including staff members from MPS Central Services and from UWM. The MSRTs perceived that communication and organization problems plagued MUSI and that leadership was through crisis management.

- The leadership has different styles and focuses. They need to work out how they interact with one another so that there is some common agreement as to the focus and thrust of what the MUSI project should be. There are numerous examples of what appears to be poor communication, internal communication. We never understood who the leadership team was. As far as their ability to be able to do the job—it's too early to tell. The leadership is probably working very, very hard, but the reporting system for our activities is not yet set. We just got our first draft and it's in tentative form. For a project as important as this one, with money coming from outside the district and accountability on a national level, it just kind of blew me away that we did not have something in place. Central Services has now become more involved, so they were either told or perceived that there were some big time issues out here and that they needed to come in to help. I really didn't know how Central Services was going to be involved; that was never presented to us.

- I see more of a need for someone to be able to communicate, facilitate groups as opposed to someone who knows about math and science, in terms of the MSRT group and leadership for this group.

- I am still not quite sure who is in charge and what their roles are. This is because of conflicting information. I think there is a big lack of communication, or, a difference of opinion. There is a lack of closure, no resolution, no follow-through. We can't just talk about it. We should model (communication) in our work ourselves. If we are to be a community of learners, then the MSRTs and the leadership team should practice what they preach, and we would have that community of learners.

- Some of our leaders have come in to trouble shoot. Not all the leadership team was on the same page at the same time. Then there is the UWM team. We were told that they don't make the decisions. I think a lot of people respect what the UWM team had to say, but they were not given enough of a chance.

- I'm not sure exactly what the role of Central Services was.

- The leadership team meets with a cluster of five math/science resource teachers. They spend three hours in a meeting, and I get a four minute summary. That's why there's a communication problem in this program.

- When our leaders sit and eat lunch with teachers, they're saying, I have time; I care; and I want to know what's going on.

- The people are really capable, but a lot of us feel that this project so far is very fragmented. I don't know if our needs are getting heard or understood.

- Our leaders are very good, and I think they were just as hopeful as we were, but they had a lack of support staff, no secretary and everything. They were confined to their offices, but they needed to be out in the schools. They needed some training too, being in charge of twenty-five people, who were just starting out on something new. It was a little overwhelming.

- I think there has been some weakness on the part of leadership. I know there is a leadership team, but I'm not sure what they do. I sat in on one meeting, and it didn't go anywhere. I got frustrated about that.

- The communication, at this point in time, has been lacking - for example, not getting back to people, not answering people, cutting people off. Some of our leaders have the vision. They know what they are doing, but we don't know what they are doing. For example, if there is a letter being sent to the principals, we don't see it. We don't know what it's saying. There is this lack of trust.

- I think some of our leaders have some good skills and not others - like I just don't know if some of them are good at working with people.

- I think the leadership was overwhelmed. A lot of things came up that I'm sure they did not anticipate. I think they planned ahead as much as they could. I haven't felt they responded completely to the concerns of the MSRTs, or the response was too little, too late. Our leaders are all serious committed people who really work hard.

- This is a brand new program, so it may not be as focused as it should be. I'm not sure the leadership is exactly clear on what the needs are for the National Science Foundation. Our jobs need to be more focused. There are questions from the MSRTs, and there is no one to tell us "yes we can" or "no we can't." And by the time the answer comes back, we don't need it any more.

- There is a serious communication problem, but the administration says you heard that wrong. Well, not all of us are hearing things wrong; maybe it's just being said wrong to us.

- Things have happened that I think would not have happened if the direction would have been clearer. The overall feeling, right now, is not good. People are treated with disrespect. Some people don't respond. There is no clear direction from the leadership.

- The leadership is struggling to determine their own leadership style and agenda. Communication is a giant problem here. They have their minds on so many things that they are not looking at us.

Discuss your role related to the COSMIC Center.

The original MUSI plan called for a clearinghouse (COSMIC Center) of community learning activities in mathematics, science, and technology that was to be ready by the 1996-97 school year. It was to be staffed by a full time coordinator and supplemented by the involvement of the MSRTs. However, the final agreement between NSF and MPS eliminated the COSMIC Center's full time coordinator position. According to the MUSI plan, the COSMIC Center was to serve as:

- A site to showcase the goals and activities of MUSI,
- A catalyst for increasing student opportunities and linkages with the community, and
- A hub for teacher, parent, and student activities.

During the time of these initial interviews, implementation of the COSMIC Center appeared to be a long way off.

The comments of the MSRTs regarding the COSMIC Center fell into three categories. First, there were comments from those MSRTs who shared the vision of the MUSI plan and appeared enthusiastic to have a role in COSMIC, although that role was undefined for most. Second, there were comments from those MSRTs who questioned the vision. They felt a

clearinghouse was not as exciting as it may at first appear. They were concerned that teachers would not use the COSMIC Center and/or that expensive equipment and resources would go under-utilized. Third, there were numerous comments regarding the lateness of COSMIC's start-up and the severe lack of supplies and resources for the MSRTs. These comments came from both groups, those who supported the vision as well as those who questioned it.

- I envision the COSMIC Center as a wonderful place where we can have all kinds of math resources, as well as science and technology, in one central location.

- I know that some of our leaders have their own impression of what the COSMIC Center is going to look like. I don't think that everybody agrees with that. So often money is invested in materials and not invested in meaningful follow through on personnel. It is not empowerment to be able to turn a computer on and use one tiny portion of what it can do. It's like a kid in a candy store. You want so much that you don't look realistically at how it will be used. I don't think that people plan well. They look at the toy, but they don't look at how to use that toy.

- I still question whether or not we can get teachers to come to the COSMIC Center on their own time after school. Right now, I view the Center as a place that has been very frustrating to me, because the COSMIC Center is a place where we meet once a week on Fridays. It's a place I walk away from more frustrated than when I came.

- I see myself as being able to open the COSMIC Center to the community, the teachers, the parents, and to be kind of a liaison to get the community involved.

- The role of the COSMIC Center eventually will be to bring in resources and form this community of learners, this clearinghouse of information. I've already had teachers at both schools say, 'Can I come to the COSMIC Center?'

- You kind of wonder, is it (the Center) going to be ready for use. Do we have to keep holding off? Even though plans call for a move later, I think we should at least start buying some basic supplies, teacher's guides, and resources now. We need guides and (resource) kits. The first time I had to tell a teacher, 'I'm sorry I couldn't find you any materials,' I felt really small.

- I don't go there often to be really honest with you. I'm more comfortable in my schools. It should have samples of materials. I could see the COSMIC Center as being a lending library.

- The Center was envisioned as a place where at least once a week we would come as a group to receive training, to be our hub. I envisioned having a desk and computer access. There would be other MSRTs there and resource materials. That has not materialized.

- When COSMIC's organized, and all of us are working together like it should be, the school won't just get one MSRT, it will be like getting 25.

- The COSMIC Center is a hollow building. It's not what it's intended to be. So the COSMIC center right now is just a place, not a reality.

- We first heard about the COSMIC Center on the day we started when they asked for volunteers to design the COSMIC Center. A group of us met and discussed and made lists. Right now the COSMIC Center is an empty room. I had imagined it to be a place where I could run to pull resources together to help teachers have the materials they need at those special, 'teachable moments' they have with their students.

Is there anything else you would like to comment on at this time regarding your role in MUSI?

The MSRTs painted a picture of this cadre of people, the 25 first-wave MSRTs, as some of the best and the brightest in mathematics and science in MPS. They recognized problems in MUSI, some noted as quite serious, and were concerned about the image of MUSI throughout the district particularly in schools that would join MUSI in the next wave. Overall, the MSRTs still remained enthusiastic and hopeful about the initiative.

- I think some of us are concerned with how those outside of MUSI see us. That view needs to be positive and look organized.
- I think there are bugs, and people are aware of the bugs. But I think we've got a winner. We've got the best people as MSRTs, and we're ready to go.
- I don't think this year should really count. I think we should have had a grand opening of MUSI. I think we should have had balloons and t-shirts...Kids in the schools should know that MUSI's going on.
- These are twenty-five of the best math/science teachers I have ever seen. They have awards. They have recognitions. They have grants.
- I feel very optimistic about what this project can do. And very patient with the growing pains.

SUMMARY[1]

During these initial interviews, this first cadre of MSRTs discussed many positive and negative aspects of MUSI after its first several months of implementation. Although these interviews were conducted during a particularly difficult time during the initiative, they do target specific problems which can be remedied prior to the initiation of subsequent waves of MUSI schools. This summary begins with what the MSRTs saw as MUSI's strengths which are followed by its weaknesses.

Strengths

Collectively, the MSRTs perceive themselves as some excellent mathematics and science teachers. As a group, they view themselves as teachers who were placed in this position because they have emerged as leaders in the district. They have been actively involved in mathematics and science education locally, and at the state and national levels. The MSRTs also recognize their individual differences. Some need to communicate and meet frequently. For them, the process of conflict resolution and communication is as important as the resolution. Others are more product oriented and have withdrawn from discussions concentrating more on outcomes and/or activities in their schools.

A large number of the MSRTs are self-starters. They have become so active implementing MUSI in their schools that they are already overwhelmed by the amount of interest they have generated in a short period of time. Each school has quite diverse needs and expectations, and these catalysts for change have metamorphosized to accommodate those needs. They are in their schools doing a diversity of activities.

Although the MSRTs perceived problems with leadership, each member of the leadership team was highly respected and was praised for past successes. UWM's role in MUSI was also seen as extremely positive and critical for continued success of the initiative.

Despite the communication problems that permeated MUSI's early implementation, the MUSI goals were well communicated to the MSRTs. The MSRTs understood that their mission as part of MUSI was to increase mathematics and science learning for all students and to reduce any gaps in achievement between racial, ethnic, or gender groups. They said that they wanted to do this by fostering an inquiring community of learners and changing the way mathematics and science are taught in each of their schools. More than half of the MSRTs supported the vision of the COSMIC Center as a way to develop this community of learners across the MPS community.

Weaknesses

Along with many new programs and initiatives comes the complications of birth and initial growing pains, and MUSI was no exception. According to the MSRTs, most of these complications during the early months of MUSI fell into three critical areas: communication, leadership, and management.

Communication

Communication breakdown was mentioned in every one of the interview transcripts. Many MSRTs felt that the communication problems overall were so acute that they could lead to the demise of MUSI. From inception of the initiative, the role of the MSRT was poorly communicated to applicants, school administrators, and school faculties in the first-wave schools. Communication problems between designated leaders and the MSRTs also plagued MUSI.

Many MSRTs misunderstood the position for which they were applying. Some thought they would serve more as mentors; others saw themselves as change agents. Some believed they would maintain their disciplinary expertise in either mathematics or science. They did not have the inclination to become as cross disciplinary as they would later learn their MSRT role required. This mis-communication alone sent confusing signals to schools, for, if the MSRTs themselves were not knowledgeable about both mathematics and science, how could they be change agents in an initiative with this as a primary emphasis?

Communication to principals was also insufficient. Many principals believed the MSRT would act like a specialty teacher of either mathematics or science in their schools. They viewed them as teachers rather than change agents and had led their faculties to believe the same. This exacerbated difficulties for the MSRTs when they arrived in the schools. Rather than being welcomed by the schools, many MSRTs not only had to explain their roles to unreceptive staffs, but also had to reverse previous misconceptions. Therefore, many MSRTs were faced with the task of informing teachers that the specialist, whom they expected to help reduce their teaching load, was actually there to help them change their own teaching. Unfortunately a few MSRTs, those who preferred one disciplinary area themselves, capitulated to school expectations, and, rather than espousing the improvement of both mathematics and science, were recognized in their schools as the science ***or*** the math teacher.

Additionally, communication problems were evident between the cadre of MSRTs and their designated leaders. The MSRTs perceived their leadership team as fragmented and unsupportive; some were unclear as to who the designated leaders actually were. They believed that the leaders themselves did not understand and/or communicate their roles and

expectations between themselves which therefore interfered significantly with how they related to the MSRTs both individually and as a group. Because of this, interactions became fragile, and some MSRTs intentionally withdrew their participation both with the leadership and within the cadre. This resulted in increased communication problems and alienation.

Leadership

Beyond the communication problems between the designated leaders of MUSI and the MSRTs, there was strong evidence that the MSRTs did not view themselves as the initiators and leaders of change that they needed to be. The MSRTs interpreted leadership along traditional structures viewing it from a familiar linear and hierarchical framework. They saw leadership only in the hands of Central Services, the MUSI Director, and the MUSI Assistant Director. The MSRTs looked to these leaders for many day to day decisions and continued to seek conformity for their roles even though they recognized the uniqueness of each school's needs. Although they could have broadened their own perceptions of leadership, they did not. They did not recognize themselves as the constructivist leaders they could be because their vision of leadership remained bounded by bureaucratic walls.

A dichotomy existed for the MSRTs. Because they understood that each community, each school, each faculty, each teacher, and each student had different needs, many were trying to adapt accordingly. This is just what MUSI wanted them to do; however, that was not being communicated adequately to them. The MSRTs did not understand their own level of autonomy in decision-making and goal setting. This much individual direction was foreign to the MSRTs who, for the most part, have had their goals centrally decided. Autonomy was a major change for them; uniformity was familiar and expected.

Although some MSRTs sought conformity and tighter procedures for their roles, this might not be the preferred course of action for MUSI. As the reports by the MSRTs indicated, the school needs were so diverse, flexibility and stronger leadership within each MSRTs may be preferable. Uniformity and specific procedures for their roles could lead to micro-management issues for the MSRTs who had been recognized and selected for their ability to lead. Instead, what may be needed is better nurturing of their budding self-images as leaders. Through training and better communication, each MSRT must see that the MPS system does not act upon them; they are the system, most particularly now in their new leadership roles.

Management

Overall, the MSRTs perceived that MUSI had a very disorganized start. Although they laid some blame on the lateness of the agreement between MPS and NSF, they felt that the initiative was troubled by poor management and follow-through. As one MSRT commented, "They had a vision in mind, but things happened so quickly, there was not enough thought given to implementation." This was most evident in (a) the preparation of all stakeholders, (b) the unavailability of resources, and (c) scheduling.

Stakeholders in the first-wave schools were poorly informed about the role of the MSRT. The experiences of MSRTs upon entering their assigned schools were most often dependent on the school administration. Unfortunately, this group was ill-informed about MUSI and unprepared for the MSRT. School administrators, faculties, and school communities needed well organized, specific preparation programs which they did not receive.

Facilities and resources were another major problem for many MSRTs. Although they were assigned to two schools and to the COSMIC Center, many found themselves without a desk or place to store their personal belongings in any of their assignments. Access to supplies was also seriously limited both in schools and at the COSMIC Center.

According to the MSRTs, scheduling in two schools was very difficult, and, as they suggested, perhaps an ineffective model for reform. The MSRTs offered several other viable alternatives including annual, semester, or monthly assignments. Other scheduling concerns included an imbalance of school size between MSRTs and conflicting starting times between paired schools.

In summary, the strength of MUSI lies in its people, the MSRTs and their designated leaders. The MSRTs were selected not only for their expertise in mathematics and/or science, but for their leadership qualities. These individuals need to develop these leadership skills by looking within to strengthen their decision-making and problem solving abilities. Additionally, the designated leaders of MUSI are well respected individuals, each with unique talents, but success depends on a blending of these talents. MUSI needs better management and organization. Varied forms of communication skills are also crucial. The management function needs straightforward verbal and written communications with all stakeholders, but the communication with the MSRTs needs to be a dialogue that fosters new levels of autonomy and decision-making within these budding new leaders. The people involved in MUSI have taken on a great challenge, but, consistent with Rallis and Zajano's findings (1997), they understand that reform initiatives do not bring instant success and that they must maintain support as they work through the "trial-and-error stage of implementation" (p. 706). In the perceptions of the MSRTs, they are a group of the "best and the brightest" teacher leaders who are learning to be "patient" with the slowness of change, but who believe in the goals of MUSI and are "ready to go."

RECOMMENDATIONS

Soon the next wave of MSRTs and MUSI schools will be on board. Assuming that this next group will have all of the knowledge and leadership strengths of the first cadre, what can be done to avoid the pitfalls that characterized their initiation? The following is a list of recommendations which emerged from the initial interviews with the first-wave MSRTs.

Communication

Provide training and modeling in communication and group dynamics for the leadership team.

Use varied forms of communication styles. The management function in MUSI needs straightforward verbal and written communications; however, the MSRTs need dialogical communication to foster their new images as leaders.

Provide extensive training and modeling in leadership, communication, and group dynamics for the MSRTs.

Continue to provide the emphasis on the purpose and goals of MUSI. What had been done with the first-wave MSRTs in this area appears to have been effective.

Clearly define the purpose of MUSI for all second-wave school leaders including designated teachers, parents, coordinators, implementors, principals, assistant principals, and other interested stakeholders.

Have new MUSI schools identify MUSI representatives who receive more intensive training. This should include teachers, parents, coordinators, implementors, and other interested stakeholders.

In every MUSI training session, emphasize role clarification for all those involved with MUSI. Because this is dramatic change, it cannot be said enough, even for the MSRTs. Stress that MSRTs are inter-disciplinary change agents, not classroom or specialty teachers.

Communicate the inter-disciplinary emphasis clearly in the position application phase for the MSRTs.

Leadership

Clarify, communicate, and then foster a new vision of leadership and level of autonomy for all leaders, particularly the MSRTs.

Continue to facilitate and build the collaborative relationship established between MPS and UWM.

Through intensive training and support, develop and nurture an image of leadership for each MSRT. Understand that these are new roles, and rather than designing structures for conformity, foster abilities to adapt and make independent decisions.

Continue to delegate responsibility to the MSRTs. Although several MSRTs may have difficulty making this change, the majority are seeking new levels of autonomy and opportunities for influence.

Management

Develop very specific plans for implementation. These should include management schedules, timelines, responsibility assignments, and checklists for the leadership team, for schools, for teachers, and for MSRTs. For example, schools should have a checklist with things to do before and during the MSRTs entrance into their school including such items as, providing a location for them to work, assigning someone to welcome them, providing time for them at staff meeting, and so on.

Ensure availability of basic supplies and resources. Despite the fact that the COSMIC Center may be uprooted, it is preferable in the minds of the MSRTs to have to pack and move supplies and resources rather than to not have them available at all.

Work with input from MSRTs regarding scheduling and pairing of schools. The major problem in having two schools is time management, and several MSRTs offered some viable alternatives which could be considered on a case by case basis. Other concerns included an imbalance of school size between MSRTs and conflicting starting times between paired schools.

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